RRH

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/629,570	07/31/2000	Fred B. Holt	030048002US	5411

25096 7590 01/12/2004

PERKINS COIE LLP
PATENT-SEA
P.O. BOX 1247
SEATTLE, WA 98111-1247

EXAMINER	
EDELMAN, BRADLEY E	

ART UNIT	PAPER NUMBER
2153	9

DATE MAILED: 01/12/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/629,570	HOLT ET AL.	
	Examiner	Art Unit	
	Bradley Edelman	2153	

-- The MAILING DATE of this communication appears on the cover sheet with the c rrespondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *28 October 2003*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-17 and 32-40* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-17 and 32-40* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

13)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

a) ☐ The translation of the foreign language provisional application has been received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) *5,6*.
4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

This Office action is in response to Applicant's response to the restriction requirement and amendment filed on October 28, 2003. Claims 1-17 and 32-40 are presented for further examination.

Specification

1. This application does not contain an abstract of the disclosure as required by 37 CFR 1.72(b). An abstract on a separate sheet is required.

The disclosure is objected to because of the following informalities:

The status of the related cases listed on page 1 of the specification must be updated.

Appropriate correction is required.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claims 1-40 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In considering claims 1, 14, and 32, these claims all contain the phrase "the added participant" or "the added node" in the last line of the claim. These phrases lack

sufficient antecedent basis, as none of these claims mention a step of actually adding a node or participant to the network.

Claims 2-13, 15-31, and 33-40 depend from these claims, and are thus rejected as well.

In addition, claim 6 uses the term "approximately proportional," while claims 10 and 37 use the term "approximately twice the diameter." The term "approximately" is a relative term that renders the claim indefinite. The term is not defined by the claim, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention.

Appropriate correction is required.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. Claims 1, 2 and 13 are rejected under 35 U.S.C. 102(e) as being anticipated by Steele, Jr., et al. (U.S. Patent No. 6,603,742, hereinafter "Steele").

In considering claim 1, Steele discloses a computer-based method for adding a participant ("node") to a network of participants, each participant connected to three or more participants (see Fig. 6), the method comprising:

Identifying a pair of participants of the network that are connected, disconnecting the participants of the identified pair from each other, and connecting each participant of the identified pair of participants to the added participant (col. 12, lines 45-51; Figs. 5 and 6, wherein nodes 3 and 1 disconnect from each other, and each of them connects to the added node 7 – note that Fig. 6 of Steele appears incorrect and that the connection between nodes 5 and 2 in Fig. 6 should have been removed).

In considering claim 2, Steele further discloses that each participant is connected to 4 participants (See Figs. 5-6, wherein each participant is connected to at least 4 participants).

In considering claim 13, Steele further discloses that the participants are computer processes ("nodes").

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. Claims 32-33 are rejected under 35 U.S.C. 103(a) as being unpatentable over Steele, in view of Cho et al. ("A Flood Routing Method for Data Networks," ICICS '97, hereinafter "Cho").

In considering claim 32, the claim contains a computer readable medium for performing the same steps as claim 1, and additionally requires that each network participant forwards broadcast messages that it receives to its neighbor participants. See the discussion of claim 1 for the description of those steps. Note, however, that Steele does not disclose that each network participant forwards broadcast messages that it receives to its neighbor participants. This is because Steele is only concerned with how nodes are added and/or subtracted to the network and how that affects network configuration. The system taught by Steele remains silent regarding the actual passing of data between nodes. Nonetheless, flood routing (i.e. broadcasting messages from each node to each neighboring node in a network) is well known, as evidenced by Cho. In a similar art, Cho discloses that flood routing is well known (p. 1418, Introduction, ¶ 1) and further describes a network system with multiple interconnected nodes (see Figs. 1, 3) that uses flood routing to pass information between nodes (p. 1418-1419, § 2, "Flood Routing Mechanism"). Given the teaching of Cho, a person having ordinary skill in the art would have readily recognized the desirability and advantages of using flood routing to send information between nodes in the system taught by Steele, because flood routing is a very reliable and robust method of data transmission (see Cho, p. 1418, Introduction, ¶ 1). Therefore, it would have been obvious to use flood routing to pass information in the network taught by Steele.

In considering claim 33, Steele further discloses that each participant is connected to 4 participants (See Figs. 5-6, wherein each participant is connected to at least 4 participants).

5. Claims 1-5, 7, 8, and 11-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gilbert et al. (U.S. Patent No. 6,490,247, hereinafter "Gilbert") in view of Hughes et al. (U.S. Patent No. 6553,020, hereinafter "Hughes").

In considering claim 1, Gilbert discloses a computer-based method for adding a participant ("node") to a network of participants, the method comprising:

Identifying a pair of participants of the network that are connected (col. 6, lines 26-49, wherein the additional node contacts the two participants), disconnecting the participants of the identified pair from each other (col. 7, lines 7-8, "the two adjacent nodes drop connection to one another"), and connecting each participant of the identified pair of participants to the added participant (col. 7, lines 13-19, "the additional node connects with each of the adjacent nodes").

However, Gilbert does not disclose that each participant is connected to three or more other participants. Gilbert discloses instead, a ring-type network, wherein each node is connected to two other nodes (see col. 3, lines 25-36). Nonetheless, the use of other types of networks to connect participants, wherein each participant is connected to three or more participants, and wherein participants can be added to the network, is well known, as evidenced by Hughes. In a similar art, Hughes discloses a network for

interconnecting nodes for communication across the network, wherein the nodes can be connected in a hypercube-type topology, or in some other type of topology such that each node is connected to 4 other nodes, wherein nodes can be added to the network (col. 14, lines 25-30, 67; col. 15, lines 1-5, 45-52; col. 4, lines 6-9, "additional users can be added later as demand grows"). Given the teaching of Hughes, a person having ordinary skill in the art would have readily recognized the desirability and advantages of using a similar technique as taught by Gilbert (i.e. disconnecting certain node connections and connecting the newly disconnected links to the added node) to connect additional participants in the system taught by Hughes, in order to maintain the network topology for added nodes, thereby maintaining the interconnectivity and reliability associated with hypercube and 4-connected networks. Therefore, it would have been obvious to use the technique disclosed by Gilbert for connecting new participants in a system such as the one taught by Hughes.

In considering claim 2, Hughes further discloses that each participant is connected to 4 participants (col. 14, lines 25-30, "hypercube"; col. 15, lines 45-52, "nodes 2 are connected in an arbitrary manner to up to a fixed number n of nearest nodes... where n=4..."; Fig. 9).

In considering claim 3, Gilbert further discloses that the pair of nodes selected for disconnection is selected arbitrarily (col. 6, lines 37-40, "the actual node that is contacted by the additional node does not matter," and can simply be "the first node on

the list"). Although Gilbert does not explicitly state that selection is done randomly, the node is effectively being selected randomly, since any node can be first on the list. The same result would be achieved by selecting a node randomly from somewhere else on the list. Thus, the limitation of selecting the node randomly does not render the claimed invention patentably distinct over the method taught by Gilbert.

In considering claim 4, Gilbert further discloses that arbitrarily selecting the pair includes sending a message through the network on an arbitrarily selected path (col. 6, lines 30-31, 37-40, "an additional node contacts two adjacent nodes in the network," wherein "the actual node that is contacted by the additional node does not matter," such that the path selected will be the path to whichever node is arbitrarily and thus randomly selected).

In considering claim 5, Gilbert further discloses that when a participant ("primary node") receives the message, it sends the message to a selected participant to which it is connected ("adjacent node," col. 6, lines 50-59). However, Gilbert does not disclose that the message is sent to a randomly selected participant. Nonetheless, Gilbert discloses that the actual initial nodes contacted do not matter (see col. 6, lines 37-40). It follows then that the selection of the adjacent node also doesn't matter, so long as it is adjacent (note that Gilbert does not specify which adjacent node is selected). Selecting an adjacent node randomly, rather than, say, selecting one particular adjacent node

over the other, is thus a matter of preference, and does not render the claimed invention patentably distinct over the method taught by Gilbert.

In considering claim 7, Gilbert further discloses that the participant to be added requests a portal computer to initiate the identifying of the pair of participants (col. 6, lines 45-47, "additional node 100 would contact node 10, and node 10 would provide additional node 100 information regarding node 16").

In considering claim 8, Gilbert further discloses that the initiating of the identifying of the pair of participants includes the portal computer sending a message to a connected participant requesting an edge connection (col. 6, lines 53-57, "primary node... receives all incoming calls from other nodes wishing to enter the network. The point of entry in the network for these other nodes is then between the primary node and an adjacent node to the primary node").

In considering claim 11, Hughes further discloses that the participants are connected via the Internet (col. 1, line 14, "Internet"; col. 14, lines 55-59, "Internet web-browsing"). It would have been obvious for the network in the participant adding system taught by Gilbert and Hughes to be the Internet, so that the participants could communicate with other users anywhere in the world. Therefore, it would have been obvious to use the participant adding system taught by Gilbert and Hughes on the Internet network.

In considering claim 12, although Hughes does not explicitly teach TCP/IP, Examiner takes official notice that TCP/IP is a standard well known protocol used for Internet communications. Therefore, it would have been obvious to connect the participants via TCP/IP for the same reasons as connecting participants via the Internet – i.e. to allow global communications on the existing Internet network.

In considering claim 13, Gilbert further discloses that the participants are computer processes ("nodes").

In considering claim 14, Gilbert discloses a computer-based method for adding nodes ("nodes") to a graph that is m-regular and m-connected (see Fig. 1, which is 2-regular and 2-connected) to maintain the graph as m-regular, the method comprising:

Identifying p pairs of nodes of the graph that are connected where p is half of m (p. is 1, see col. 6, lines 30-42, wherein a pair of adjacent nodes is identified);

Disconnecting the nodes of each identified pair from each other (col. 7, lines 7-8); and

Connecting each node of the identified pair of nodes to the added node (col. 7, lines 13-19).

However, Gilbert does not disclose that m is four or greater, and thus that the graph is at least 4-connected and 4-regular. Nonetheless, the use of 4-connected and 4-regular networks wherein nodes can be added to the network is well known, as

evidenced by Hughes. In a similar art, Hughes discloses a network for interconnecting nodes for communication across the network, wherein the nodes can be connected in a hypercube-type topology, or in some other type of topology such that each node is connected to 4 other nodes, wherein nodes can be added to the network (col. 14, lines 25-30, 67; col. 15, lines 1-5, 45-52; col. 4, lines 6-9, "additional users can be added later as demand grows"). Given the teaching of Hughes, a person having ordinary skill in the art would have readily recognized the desirability and advantages of extending the node addition method taught by Gilbert (i.e. disconnecting p pairs of nodes node connections and connecting the newly disconnected links to the added node) to more highly connected (i.e. 4-connected) networks, in order to maintain the network topology for added nodes, thereby maintaining the interconnectivity and reliability associated with hypercube and 4-connected networks. Therefore, it would have been obvious to use the technique disclosed by Gilbert for connecting new participants to the 4-connected system taught by Hughes.

In considering claim 15, Gilbert further discloses that the pair of nodes selected for disconnection is selected arbitrarily (col. 6, lines 37-40, "the actual node that is contacted by the additional node does not matter," and can simply be "the first node on the list"). Although Gilbert does not explicitly state that selection is done randomly, the node effectively is being selected randomly, since any node can be first on the list. The same result would be achieved by selecting a node randomly from somewhere else on

the list. Thus, the limitation of selecting the node randomly does not render the claimed invention patentably distinct over the method taught by Gilbert.

In considering claim 16, Hughes further discloses that the nodes are computers and the connections are point-to-point connections (abstract).

In considering claim 17, both Gilbert and Hughes further disclose that m is even (i.e. 2 or 4).

6. Claims 32-36, 38, and 39 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gilbert in view of Hughes, and further in view of Cho et al. ("A Flood Routing Method for Data Networks," ICICS '97, hereinafter "Cho").

In considering claim 32, the claim contains a computer readable medium for performing the same steps as claim 1, and additionally requires that each network participant forwards broadcast messages that it receives to its neighbor participants. See the discussion of claim 1 for the description of those steps. Note, however, that neither Gilbert nor Hughes disclose that each network participant forwards broadcast messages that it receives to its neighbor participants. Nonetheless, flood routing (i.e. broadcasting messages from each node to each neighboring node in a network) is well known, as evidenced by Cho. In a similar art, Cho discloses that flood routing is well known (p. 1418, Introduction, ¶ 1) and further describes a network system with multiple interconnected nodes (see Figs. 1, 3) that uses flood routing to pass information

between nodes (p. 1418-1419, § 2, "Flood Routing Mechanism"). Given the teaching of Cho, a person having ordinary skill in the art would have readily recognized the desirability and advantages of using flood routing to send information between nodes in the system taught by Gilbert and Hughes, because flood routing is a very reliable and robust method of data transmission (see Cho, p. 1418, Introduction, ¶ 1). Therefore, it would have been obvious to use flood routing to pass information in the network taught by Gilbert and Hughes.

In considering claim 33, Hughes further discloses that each participant is connected to 4 participants (col. 14, lines 25-30, "hypercube"; col. 15, lines 45-52, "nodes 2 are connected in an arbitrary manner to up to a fixed number n of nearest nodes... where n=4..."; Fig. 9).

In considering claim 34, Gilbert further discloses that the pair of nodes selected for disconnection is selected arbitrarily (col. 6, lines 37-40, "the actual node that is contacted by the additional node does not matter," and can simply be "the first node on the list"). Although Gilbert does not explicitly state that selection is done randomly, the node effectively is being selected randomly, since any node can be first on the list. The same result would be achieved by selecting a node randomly from somewhere else on the list. Thus, the limitation of selecting the node randomly does not render the claimed invention patentably distinct over the method taught by Gilbert.

In considering claim 35, Gilbert further discloses that arbitrarily selecting the pair includes sending a message through the network on an arbitrarily selected path (col. 6, lines 30-31, 37-40, "an additional node contacts two adjacent nodes in the network," wherein "the actual node that is contacted by the additional node does not matter," such that the path selected will be the path to whichever node is arbitrarily and thus randomly selected).

In considering claim 36, Gilbert further discloses that when a participant ("primary node") receives the message, it sends the message to a selected participant to which it is connected ("adjacent node," col. 6, lines 50-59). However, Gilbert does not disclose that the message is sent to a randomly selected participant. Nonetheless, Gilbert discloses that the actual initial nodes contacted do not matter (see col. 6, lines 37-40). It follows then that the selection of the adjacent node also doesn't matter, so long as it is adjacent (note that Gilbert does not specify which adjacent node is selected). Selecting an adjacent node randomly, rather than, say, selecting one particular adjacent node over the other, is thus a matter of preference, and does not render the claimed invention patentably distinct over the method taught by Gilbert.

In considering claim 38, Gilbert further discloses that the participant to be added requests a portal computer to initiate the identifying of the pair of participants (col. 6, lines 45-47, "additional node 100 would contact node 10, and node 10 would provide additional node 100 information regarding node 16").

In considering claim 39, Gilbert further discloses that the initiating of the identifying of the pair of participants includes the portal computer sending a message to a connected participant requesting an edge connection (col. 6, lines 53-57, "primary node... receives all incoming calls from other nodes wishing to enter the network. The point of entry in the network for these other nodes is then between the primary node and an adjacent node to the primary node").

Allowable Subject Matter

7. As allowable subject matter has been indicated, applicant's reply must either comply with all formal requirements or specifically traverse each requirement not complied with. See 37 CFR 1.111(b) and MPEP § 707.07(a).

Claims 9 and 40 would be allowable if rewritten to include all of the limitations of the base claim and any intervening claims, and if the base claims were rewritten to overcome the rejection(s) under 35 U.S.C. 112, second paragraph, set forth in this Office action.

The following is a statement of reasons for the indication of allowable subject matter: the prior art of record fails to disclose or render obvious all of the limitations of the claims, including the claimed distance-related selection steps described in claims 9, and 40.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Bradley Edelman whose telephone number is (703) 306-3041. The examiner can normally be reached on Monday to Friday from 8:30 AM to 5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Glen Burgess can be reached on (703) 305-4792. The fax phone numbers for the organization where this application or proceeding is assigned are as follows:

For all correspondences: (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 305-3900.

Bradley Edelman

BE
January 6, 2004